

## Chapter 5 Small Arms

### Section I Cold Weather Problems

#### CLIMATIC CONDITIONS

Just as with larger weapon systems, severe cold can adversely affect small arms. Special care and procedures must be followed to keep them functioning properly.

#### Cold-Dry Conditions

Exposed metal surfaces require more frequent applications of smaller amounts of lubrication in order to remain fully functional in the cold-dry air.

#### Condensation

Condensation forms on weapons when they are taken from the cold into any type of heated shelter. This condensation is often referred to as *sweating*. When the weapon is later taken out into the cold air, the film of condensation freezes. This is especially serious when it occurs in the internal parts of the weapon, and stoppages and malfunctions result. When weapons are taken into heated shelters for cleaning purposes, *sweating* may continue for as long as one hour. When time permits, wait one hour, remove all condensation, and then clean the weapon.

Any opening that allows air to enter can also be a condensation problem area. When in combat, leave winterized weapons outdoors and covered. An alternative method is to place individual weapons between the tent and tent liner. This method allows for rapid access to the weapons, provides security, and still protects the weapon from excessive condensation. Special cleaning procedures reduce problems caused by condensation. When enemy contact is

imminent, the interior climate of troop compartments of transportation systems (especially aircraft) should be maintained close to freezing (32°F). This prevents overheating of troops dressed in the cold regions uniform. It also prevents moisture from condensing and refreezing on weapons as troops debark into the cold from warm aircraft and vehicles. Soldiers and aircraft crews must exercise caution when loading soldiers after periods of heavy exertion. Sweat buildup and body heat of soldiers loaded on an aircraft can cause extreme and rapid fogging of the aircrafts windshields, blocking pilot vision. Soldiers preparing for extraction should ventilate their uniforms and remove as much body heat buildup as possible.

Maintenance procedures may require modification to reduce problems created by condensation. For example, the operator is not normally allowed to disassemble the buffer assembly of his M16A2 rifle. However, such disassembly may be necessary to prevent rifle stoppages due to condensation and refreezing.

Despite precautions, weapons parts may still freeze. If they do, slow and careful manual operation may free them and prevent breakage.

#### Snow and Ice

Blowing snow tends to get into working parts, sights, barrels, magazines, and ammunition, especially when moving in deep snow under combat conditions. Use covers and muzzle caps when available, but remove them prior to firing.

### **Visibility**

Blowing snow and ice fog inhibit soldiers' abilities to acquire and engage targets with small arms. Also, weapons fire creates a pall of ice fog that can hang over the weapon position, not only blocking the gunner's vision, but revealing the position to enemy gunners.

### **FUNCTIONING DIFFICULTIES**

Cold adversely affects the functioning of small arms. Care must be taken to identify problems and apply corrective action.

### **Sluggishness**

A common weapons problem in cold weather is sluggish operation. Normal lubricants thicken at low temperatures, and stopped or sluggish action of firearms results. During the winter, weapons must be stripped completely and cleaned with a dry-cleaning solvent to remove all lubricants and rust prevention compounds. Below 10°F, LAW helps moving parts slide better than CLP or LSA. These products provide proper lubrication during the winter and help minimize freezing of snow and ice on the weapons.

### **Breakages and Malfunctions**

Another problem the soldier faces in severe cold is a higher rate of breakage and

malfunctions. This can be attributed primarily to the cold, although snow in weapons can also cause stoppages and malfunctions. The hardened metal parts of automatic weapons are more brittle than soft metal in cold temperatures. When the weapon is fired at sub-zero temperatures, parts can break within the first few rounds. Short bursts warm the gun to a normal firing temperature. Weapons should first be fired at a slow rate of fire. Once the parts have warmed up, the rate of fire may be increased to the normal cyclic rate.

### **Emplacement**

Most crew-served infantry weapons need a natural base or gun platform to fire accurately. In warm weather, the ground provides a solid base and yet has enough resiliency to act as a shock absorber. If the weapon is emplaced on solid, frozen ground, there is no "*give*". All the shock of firing is absorbed by the weapon itself, resulting in damage. Also, the slippery surface of the frozen ground may allow the weapon to slide.

If the snow is not too deep, and if time permits, tripods should be positioned by expedient means to keep them from moving. Lashing the tripod feet to logs that rest on pine boughs or brush, or using the ahkio (sled) as a firing platform, are methods of stabilizing tripods.

## **Section II**

### **Effects of Cold on Small Arms and Ammunition**

### **PRECAUTIONS**

When using weapons or handling ammunition in severe cold, the operator should wear gloves or trigger-finger mittens with liners.

Sudden changes in temperature can cause plastic handgrips, like those on the M203 grenade launcher, to crack. Wrapping

the weapon in a blanket or poncho before bringing it from a cold to a warm area helps warm it gradually.

### **PISTOLS**

When using pistols in cold weather, difficulties that arise can include damage to moving parts and firing the pistol wearing

arctic mittens. Malfunctions can be caused by snow or ice-plugged clips.

## **RIFLES**

Malfunctions and breakages are caused in firing because of the cold, or because the weapon is fouled by ice or snow. Parts most likely to break are sears, firing pins, and operating rod parts--those that are moving or affected by recoil. Malfunctions in automatic rifles may be caused by snow or ice-plugged magazines. Apply LAW to prevent bipods from freezing in position. Although all rifles create ice fog, the signature effects are minimized since the firer can change position.

## **MACHINE GUNS**

Machine guns (MGs) break and malfunction at a high rate in cold weather. Gun crews must carry extra sears and bolt parts. One common malfunction that occurs early in firing is short recoil (bolt does not recoil fully to the rear). The prescribed immediate action for the particular weapon should be applied. As the metal warms, the problem will diminish. A second type of malfunction is caused by the freezing and hardening of buffers. This in turn causes great shock and rapid recoil, thereby increasing the cyclic rate. When this happens, parts usually break.

Condensation causes parts to freeze. All internal parts and friction surfaces of MGs should be coated with LAW. These weapons have fewer malfunctions when fired cold and dry if sub-zero lubricants are not available. Firing should consist of short, two- or three-round bursts fired at close intervals. Since ice fog greatly impairs the gunner's vision along his line of sight, crews must prepare two or three alternate gun positions.

After changing barrels, if the hot barrel is laid directly on snow or ice, it may warp or disappear in deep snow. A tarp or poncho keeps barrels from warping or disappearing.

## **AMMUNITION**

Cold weather does not materially affect the performance of small arms ammunition. Ammunition should be kept at the same temperature as the weapon and should be carried in bandoleers. Additional ammunition should be protected in the pockets of the parka or rucksack.

Ammunition, clips, and magazines must be cleaned of all oil and preservative and must be frequently checked. Remove all ice, snow, and condensation. Keep cartridge containers, magazines, and ammunition drums closed to prevent the formation of rust or ice.

Store ammunition in original containers. Raise storage containers off the ground and cover them with tarpaulins, ponchos, salvage tents, or any other material that affords protection from the snow. Ammunition so stored should be marked to assist with relocating it if the storage containers become snow-covered.

Resupply in cold climates is also difficult, especially the resupply of heavy, bulky ammunition. All soldiers must practice ammunition economy and fire discipline to reduce resupply requirements. Loaded clips, magazines, or single rounds dropped into the snow are often lost. Careful handling of ammunition is essential.